

BAYER CORPORATION

4039373

PROJECT

Silane Terminated Polyurethane

PROJECT NO. 01-KMH-006

NAME

K Henderson

DATE

1/29/01

(PRINT)

REFERENCE:

OBJECTIVES:

Make 4 L

Materials

EW

Amount

Eg

Ratio

(1) IPDI

110.91

139.26

1.256

2

(2) 12200 Acclaim
Polyol5783.51
3630.96

3630.96

0.628

1

(3) XP-7139

366

229.78

0.628

1

(4) Ti₂ (200 ppm)

.80

(5) Vinyl Trimethoxy silane
(0.5 phr)

20.0

Time

Temp

Remarks

4 pm

21.2

Charged a 5 L flask

(1) IPDI and (2)

Stir Na purge

Condenser R

Added .80 g Ti₂

Turn heat up to 60°C

4:30

4:50

6:45

60°C

64°C

NCO = 0.72%

Used ~ 2 g of sample

Added XP-7139

No NCO Remains

per React IR shutdown

Heat to 60°C

Added Vinyl Trimethoxy

silane (20 g)

Let stir 30 min.

Delivered to Derek

Crawford.

Na blanket.

Theoretical NCO: (IPDI + Acclaim)

1.256

3770.22

0.628

0.628

4200

6003.54

CONCLUSION:

6003.54

.70

Visc @ 25°C = 91.620 cPs

Delivered to Derek

Crawford.

Sent for GPC

EXPERIMENTER (signature)

Karen Henderson

DATE

1/29/01

READ AND UNDERSTOOD (signature)

Luchl Roach

DATE

2/8/01

TRANSFERRED (signature)

Best Available Copy

BAYER CORPORATION

4039377

PROJECT Silane Terminated Polyurethane
 PROJECT NO. _____ NAME K Henderson DATE 2/6/01
 (PRINT)

REFERENCE:

OBJECTIVES:

Materials	EW	Amount	Eg	Eg Ratio
(1) IPDI	110.71	126.77	1.143	2
(2) "9100" Polyol Supplied by Kurt Frisch (obtained from New Town Square) OH # supplier = 8.75	641.43	3664.67	0.571	1
(3) XP-7139	366 209.17	209.17	0.571	1
(4) T ₁₂ (200 ppm) (dibutyltin laurate)		.80		
(5) Vinyl trimethoxysilane		20.0		

Time

Temp

Remarks

10 am

20.1

A 5-L flask was charged @
 (1) The polyol was added.
 Stir 1/2 purge added
 80g T₁₂ turned heat
 to 60C

10:30 am

60C

NCO = .65% theoretical 6337

1 pm

60C

Added XP-7139
 No NCO Remains per
 React IR

4:30 pm

60C

Added 20g vinyl
 trimethoxysilane to
 stabilize stir ~ 20 min
 Pour 90g. Deliver to
 D. Crawford

CONCLUSION:

VISC @ 25C 16,100 CPS

H₂O water = 0.009

Sent for GPC
 Delivered to Derek Crawford

EXPERIMENTER (signature)

Karen Henderson

DATE 2/6/01

READ AND UNDERSTOOD (signature)

Richard Roach

DATE 2/8/01

INFERRED (signature)

BAYER CORPORATION

4042581

PROJECT Silane Terminated PolyurethanePROJECT NO. 01-PP-018 NAME DINESH PETHIYAGODA DATE 5/7/01
(PRINT)

REFERENCE:

OBJECTIVES:

Prepare 250g of Resin for the PACE team using Silquest Y-5187 (gamma-isocyanatopropyl trimethoxysilane) and Acculim 9100. Samples to be handed to Derek Cranford.

Materials	EW	Amount/g	Egr	Egr Ratio
① Acculim 9100 (OH# 7.49)	7295.19	239.80 (239.90)	0.033	1
② Silquest Y-5187 (Gamma-isocyanatopropyl trimethoxysilane)	270.97	8.91 (9.20)	0.033	1
③ T ₁₂ (DBTL)		0.05 (Not Added)		
④ Vinyltrimethoxysilane (Silquest A-11)		1.24 (1.24)		

Time	Temp	Remarks
11:05 AM	21.6°C	Charged a 500ml flask with ① and ②. H ₂ O purged and condenser on with stirring. Heated to 50°C
11:35 AM	51.3°C	
3:45 PM	48.8°C	NCO peak present as per React IR. Reaction left overnight.
5/8/01 8:30 AM	24°C	Heated react to 50°C with stirring. H ₂ O purge and condenser.
10:00 AM		NCO peak still present.
12:40 PM	49.9°C	NCO peak present.
3:05 PM	50.5°C	Very small peak as per React IR.
3:15 PM		Added Silquest A-11.
3:45 PM		Poured off samples and sealed under H ₂ O head.

CONCLUSION: Viscosity @ 25.1°C, 20rpm, 4-52 = 2811 cps

Samples handed to Derek Cranford.
Submitted samples for GPC analysis.

EXPERIMENTER (signature) D. PethiyagodaDATE 5/8/01READ AND UNDERSTOOD (signature) R. Pethiyagoda

BAYER CORPORATION

4042582

PROJECT Silane Terminated PolyurethanePROJECT NO. 01-DP-018 NAME DINESH PETHIYAGODA DATE 5/7/01
(PRINT)

REFERENCE:

OBJECTIVES:

Prepare 250g of Resin for the PACE Tissue using Silquest Y-5187 (gamma-aminopropyl trimethoxysilane) and Acclain 12200. Sample to be handed to Derek Crawford.

Material	EW	Amount/g	Eg	Eg Ratio
① Acclain 12200 (OH# = 9.7)	5783.5	237.58 (238.5g)	0.041	1
② Silquest Y-5187 (gamma-aminopropyl trimethoxysilane)	270.97	11.13 (11.49)	0.041	1
③ $\text{Ti}_2(\text{DBTD})$		0.05 ($\text{NaTi}_2\text{P}_2\text{O}_7$)		
④ Vinyltrimethoxy Silane (Silquest A-971)		1.24 (1.24)		

%HCO of Silquest Y-5187 = 19.26%

Time	Temp	Remarks
1:50pm	20.8°C	Charged 500ml flask with ① and ②. N_2 purged and condenser on with stirring. Heated to 50°C.
3:55pm	46.1°C	HCO peak presents as per Remark.
5/8/01 8:30 Am	23°C	IR left react overnight. Heated react to 50°C with stirring.
10:00am		N_2 purged and condenser.
12:40 pm	49.6°C	HCO peak still present.
1:00pm		HCO peak present.
3:05pm	50.0°C	%HCO = 0.89%.
3:15pm		Very small peak as per Remark. IR.
3:45pm		Added Silquest A-971. Poured off samples and sealed under N_2 head.

CONCLUSION:

Viscosity @ 25.1°C, 10rpm, S-52 = 4935 cP.

Samples handed to Derek Crawford.

Submitted samples for GPC analysis.

(PERIMENTER (signature) D. Pethiyagoda

DATE 5/8/01

READ AND UNDERSTOOD (signature) R. Roese

DATE 2/26/01

BAYER CORPORATION

4048214

PROJECT

STP work

PROJECT NO.

NAME

Melanie L Brown

DATE

9/10/01

REFERENCE:

OBJECTIVES:

NB#:

4048214-1 4048214-2 4048214-3 4048214-4

Sample #:

100/0

80/20

60/40

40/60

12K

5187

1

2

3

4

9K

ASP (7139)

37.5

30.0

22.5

15.0

DIDP

17.5

7.5

15.0

22.5

A-1120

17.5

17.5

17.5

17.5

A-171

0.8

0.8

0.8

0.8

T-12

0.5

0.5

0.5

0.5

silica

0.10

0.10

0.10

0.10

CaCO₃

0.50

0.50

0.50

0.50

43.1

43.1

43.1

43.1

Method:

- add resin, VTMO, aminosilane, DIDP
- mix 1 min @ 2200 rpm
- degas @ 50 deg C for 45 min.
- add T-12
- mix 15 sec @ 2200 rpm
- standard draw down and cure

CONCLUSION:

EXPERIMENTER (signature)

BAYER CORPORATION

4048216

PROJECT

STP work

PROJECT NO.

NAME

Melanie L Sprouson

DATE

7/10/01

(PRINT)

REFERENCE:

OBJECTIVES:

NB#:		4048216-1	4048216-2	4048216-3
		80/20	60/40	40/60
Sample #:		1	2	3
12K	5187	30.0	22.5	15.0
9K	5187	7.5	15.0	22.5
DIDP		17.5	17.5	17.5
A-1120		0.8	0.8	0.8
A-171		0.5	0.5	0.5
T-12		0.10	0.10	0.10
silica		0.50	0.50	0.50
CaCO ₃		43.1	43.1	43.1

Notes:

Method:

- add resin, VTMO, aminosilane, DIDP
- mix 1 min @ 2200 rpm
- degas @ 50 deg C for 45 min.
- add T-12
- mix 15 sec @ 2200 rpm
- standard draw down and cure

CONCLUSION:

EXPERIMENTER (signature)

DATE

READ AND UNDERSTOOD (signature)

DATE

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